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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,588	06/06/2005	Bin Wu	2005_0467A	1469

513 7590 05/02/2007  
WENDEROTH, LIND & PONACK, L.L.P.  
2033 K STREET N. W.  
SUITE 800  
WASHINGTON, DC 20006-1021

EXAMINER
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TOSCANO, ALICIA

ART UNIT	PAPER NUMBER
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1712

MAIL DATE	DELIVERY MODE
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05/02/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/531,588	<b>Applicant(s)</b> WU, BIN	
	<b>Examiner</b> Alicia M. Toscano	<b>Art Unit</b> 1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/18/05</u>   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Keefe (US 6184311) in view of Zhou (US 20010047062).

O'Keefe discloses powder coating compositions. Said compositions comprise 5-100% of a semi-crystalline polyester, 0-95% of an amorphous polyester (Column 2 Lines 57-63) and 15-60% of a epoxy resin (Column 7 Line 14). The amorphous polyester has an acid number of 15-90 mg KOH/g (Column 6 Lines 3-4) and the epoxy resin may be a polyglycidyl ether of an aromatic polyol such as bisphenol A (Column 7 Lines 15-16) with an epoxy equivalent weight of between 150 and 1500 (Column 7 Line 23). It is the Examiners position that the amorphous polyester is inherently carboxylated since one would use a 50/50 mixture of diacid and diol during the

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polymerization of the polyester thusly resulting in about half the endgroups being carboxyl groups. The semi-crystalline polyester may be end capped with a dicarboxylic acid to produce an acid functional semi-crystalline polyester (Column 4 Lines 60-62). The dicarboxylic acid may be succinic acid, trimellitic acid and the like (Column 4 Lines 11-16). O'Keefe does not disclose the use of an anhydride to end cap the semi-crystalline polyester, as further required by Claim 1.

Zhou discloses epoxy resin crosslinked polyester powder coatings [0002]. Said polyester is endcapped with a carboxylic acid or anhydride. The anhydride may be trimellitic anhydride, succinic anhydride and the like. Zhou thusly teaches the functional equivalence of said anhydrides to the acids of O'Keefe.

It would have been obvious to one of ordinary skill in the art at the time of invention to include in O'Keefe the use of trimellitic anhydride and the like, as taught by Zhou since they are recognized in the art as being functionally equivalent to trimellitic acid and the like. O'Keefe and Zhou meet all the requirements of Claim 1.

The amorphous polyester of Example 2a comprises close to 100% of a mixture of terephthalic acid and isophthalic acid (with a very minor quantity of adipic acid) and 100% neopentyl glycol, as required by Claim 2. The semi-crystalline polyester may be capped with trimellitic anhydride, as set forth above. The hydroxyl number of the semi-crystalline polyester is not disclosed however it is the Examiners position that since O'Keefe is end capping the hydroxyl groups in order to decrease the hydroxyl number to less than 11 that the hydroxyl number prior to end capping would inherently lie within the large range of 15 to 70 KOH/g. The semi-crystalline polyester may further comprise

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100% terephthalic acid and 100% 1,6-hexanediol (EX 1a), meeting all the requirements of Claim 3. The epoxy resin is as set forth above and meets the limitations of Claim 4. Claims 5 and 6 are drawn to optional components and are thusly rejected.

The Tg of the amorphous polyester is around 60-70C (Ex 2a and 2b) and the viscosity is 7200 MPa and 2900 MPa, meeting the requirements of Claim 7. The Mn of the amorphous polyester is not disclosed, however since the Tg and the viscosity measurements meet the limitations set forth in the claim it is the Examiners position that the Mn would inherently lie within the applicants broad range.

The acid number of the amorphous polyester is 15-90, as required by Claim 8. The semi-crystalline polyester has an acid number of 10-70 (Column 3 Lines 36-39), a Mn of 1600-12000 (Column 3 Lines 44-51), a Tg of less than 55C and a viscosity of 700 or more, see Ex 1a-d. The fusion zone and degree of crystallinity are not disclosed however it is the Examiners position that these properties would inherently be met by O'Keefe since the acid number, Mn, Tg and viscosity have been met. Said acid number also meets the limitations of Claim 10. Claim 11 is drawn to an optional component and is thusly rejected. Use of less than 5 wt% catalyst such as quaternary ammonium salts, phosphines, amines and like are disclosed in Column 8 Lines 49-51, as required by Claim 12. Use of flow promoting agents and the like are disclosed in Column 8 Lines 61-63, as required by Claim 13. The coating may be unpigmented (Column 8 Line 58) as required by Claim 14, or pigmented, as required by Claim 15 and may be applied using electrostatic spray or a fluidized bed (Column 10 Lines 53-54), as required by

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Claim 16. The coated surface is inherently partially or totally coated, as required by Claim 17.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alicia M. Toscano whose telephone number is 571-272-2451. The examiner can normally be reached on Monday to Friday 8:30 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

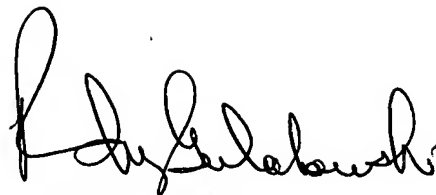
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AMT

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A handwritten signature in black ink, appearing to read "Randy Gulakowski". The signature is fluid and cursive, with a large initial "R" and "G".

RANDY GULAKOWSKI  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700